

24. (Amended) A method of injection molding a light metal alloy comprising the steps of:

cooling a molten metal under shearing by an extrusion screw into a semi-solidified slurry in a substantially vertical chamber;

discharging the semi-solidified slurry from a discharge port at the lower end of the chamber;

turning the semi-solidified slurry in the horizontal direction;

filling an internal channel of the horizontal direction with the semi-solidified slurry;

and

injecting the turned semi-solidified slurry of a predetermined amount into molding plates opening or closing in the horizontal direction from the discharge end of the second internal channel of the horizontal direction.

25. (Amended) An injection molding apparatus for a light metal alloy, comprising:

a chamber;

a extrusion screw located substantially vertically and provided rotationally inside said chamber, wherein the extrusion screw is mounted for movement in the axial direction thereof, to extrude the molten metal of the semi-solidified slurry;

a cooling unit for cooling a light metal material supplied in said chamber so as to be formed into a molten metal or semi-solidified slurry;

a connection member having a first internal channel substantially in a vertical direction and a second internal channel extending horizontally from the lower end of the first channel, said connection member being connected to a discharge port of said chamber;

a nozzle connected at the discharge end of said connection member;

nozzle discharge port opening/closing means for opening or closing a discharge port of said nozzle; and

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a clamping device for injection molding the molten metal or the semi-solidified slurry discharged from said nozzle, wherein said clamping device is adapted to open or close a movable plate relative to a stationary plate in a horizontal.

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Please add the following new claims:

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26. (New) A method of injection molding a light metal alloy as defined in claim 24, wherein the turned semi-solidified slurry is injected into the molding plates by moving the extrusion screw in the axial direction thereof.

27. (New) A method of injection molding a light metal alloy as defined in claim 24, wherein the turned semi-solidified slurry is injected into the molding plates by moving an injection plunger in the horizontal direction.

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28. (New) An injection molding apparatus for a light metal alloy, comprising:  
a chamber;  
a extrusion screw located substantially vertically and provided rotationally inside said chamber;

a cooling unit for cooling a light metal material supplied in said chamber so as to be formed into a molten metal or semi-solidified slurry;

a connection member having a first internal channel substantially in a vertical direction and a second internal channel extending horizontally from the lower end of the first channel, said connection member being connected to a discharge port of said chamber;

an injection plunger provided in the second internal channel, said injection plunger moving in the horizontal direction for injecting the molten metal or semi-solidified slurry;

a nozzle connected at the discharge end of said connection member;

/ nozzle discharge port opening/closing means for opening or closing a discharge port of said nozzle; and

a clamping device for injection molding the molten metal or the semi-solidified slurry discharged from said nozzle, wherein said clamping device is adapted to open or close a movable plate relative to a stationary plate in a horizontal.

29. (New) An injection molding apparatus as defined in claim 28, wherein said nozzle discharge port opening/closing means is a temperature setting member disposed in the discharge port of the nozzle for forming a solid plug.

30. (New) An injection molding apparatus as defined in claim 28, wherein said nozzle discharge port opening/closing means is an on-off valve disposed in the discharge port of the nozzle.

31. (New) An injection molding apparatus for a light metal alloy, comprising:

a chamber;

a extrusion screw located substantially vertically and provided rotationally inside said chamber, wherein the extrusion screw is mounted for movement in the axial direction thereof, to extrude the molten metal of the semi-solidified slurry;

a cooling unit for cooling a light metal material supplied in said chamber so as to be formed into a molten metal or semi-solidified slurry;

a connection member having a first internal channel substantially in a vertical direction and a second internal channel extending horizontally from the lower end of the first channel, said connection member being connected to a discharge port of said chamber;

a nozzle connected at the discharge end of said second internal channel;

nozzle discharge port opening/closing means for opening or closing a discharge port of said nozzle; and